SERVICE MANUAL BG-2S CHASSIS
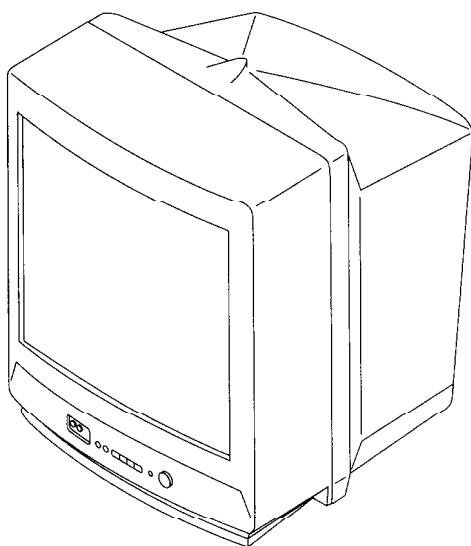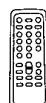
MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-G21M2	RM-869	Hong Kong	SCC-U02A-A				
KV-G21Q2	RM-869	E	SCC-U03B-A				

MICROFILM

TRINITRON ® COLOR TV
SONY®

SPECIFICATIONS

		Note
Power requirements	110-240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of the TV	
Television system	B/G, I, D/K, M	KV-G21M2
	B/G	KV-G21Q2
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	KV-G21M2
	PAL, PAL 60, SECAM, NTSC4.43	KV-G21Q2
Channel coverage		
B/G	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41	
I	UHF: B21 to B68 / CATV: S01 to S03, S1 to S41	KV-G21M2 only
D/K	VHF: C1 to C12, R1 to R12/UHF: C13 to C57, R21 to R60 / CATV: S01 to S03, S1 to S41, Z1 to Z39	KV-G21M2 only
M	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+ 4, W+ 6 to W+ 84	KV-G21M2 only
Audio output (speaker)	3W	
Inputs	∏ (antenna): 75 ohms external terminal	
	⊖ (video input) jacks: phono jacks ⊙ (video): 1 Vp-p, 75 ohms ♪ (audio): 500 mVrms, high impedance	
Outputs	∏ (earphone) jack: mini jack	
	⊖ (monitor output) jacks: phono jacks ⊙ (video): 1 Vp-p, 75 ohms ♪ (audio): 500 mVrms	
Picture tube	21 in.	
Tube size (cm)	54	Measured diagonally
Screen size (cm)	51	Measured diagonally
Dimensions (w/h/d, mm)	516 × 464 × 478	
Mass (kg)	22	

Design and specifications are subject to change without notice.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.
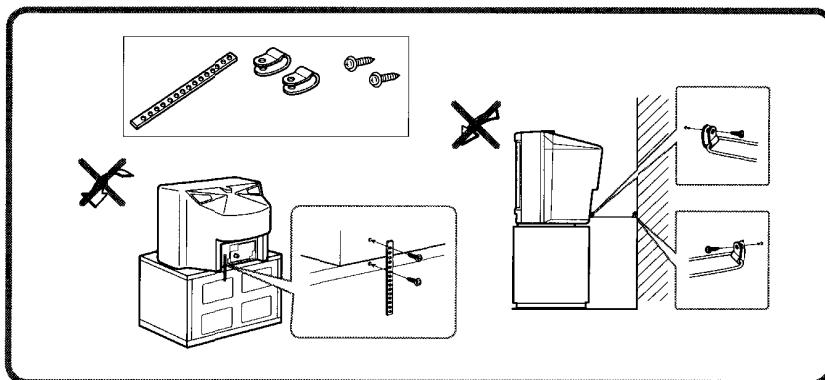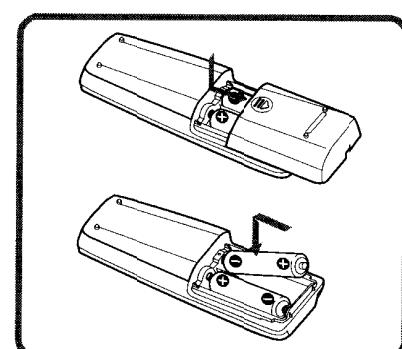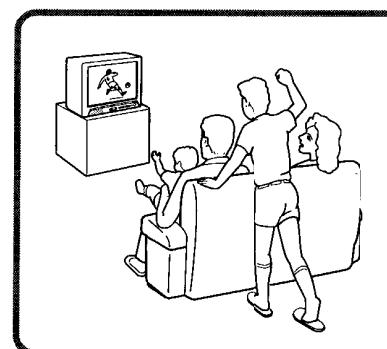
TABLE OF CONTENTS

SECTION 1
GENERAL

The operating nstructions mentioned here are partial abstracts from the Operating Ins:ructions Manual. The page numbers of the Operating Instruction Manual remain as in this manual.

SELECT   – PROGR +

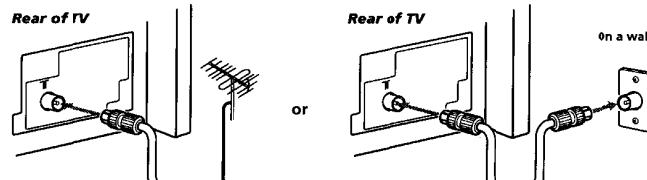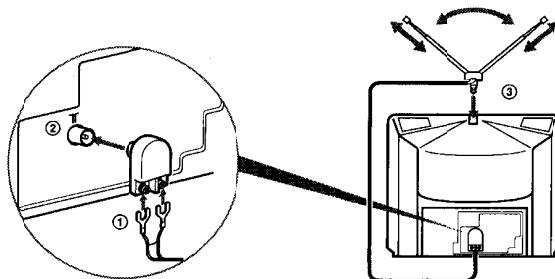SELECT   – PROGR +

VHF   LOW   B/G
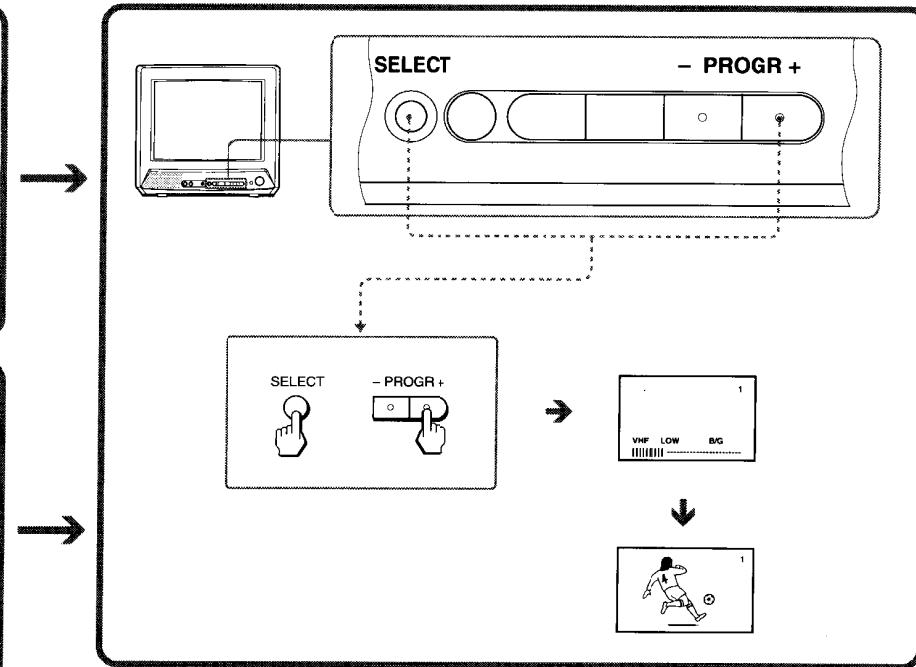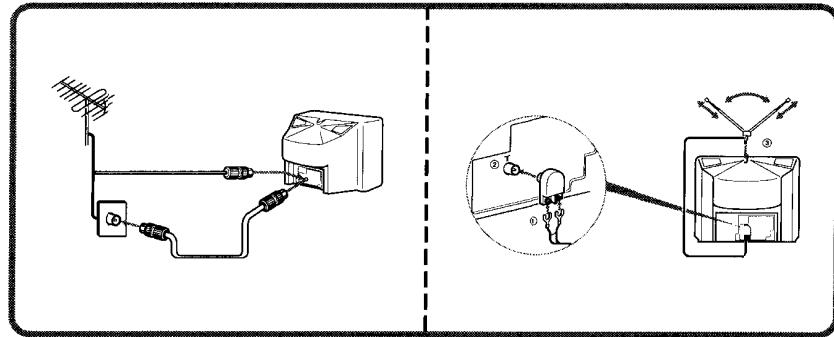
Connections

Connecting a VHF antenna or a combination VHF/UHF antenna — 75-ohm coaxial cable (round)

Attach an optional IEC antenna connector to the 75-ohm coaxial cable.
Plug the connector into the ⊤ (antenna) socket at the rear of the TV.

Rear of TV   **Rear of TV**   On a wall
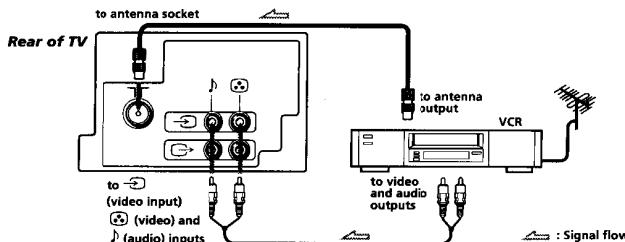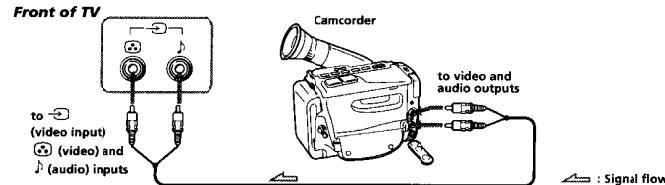
or

Connecting an indoor antenna

Note
• You are advised to use an outdoor antenna for better reception.

Connecting optional equipment

You can connect optional audio/video equipment to your TV such as a VCR, multi disc player, camcorder, or video game.

Connecting video equipment using the ⊖ (video input) jack

Front of TV   Camcorder
to video and audio outputs
to ⊖
(video input)
⊙ (video) and
♪ (audio) inputs   : Signal flow

to antenna socket
Rear of TV
to antenna output   VCR
to ⊖
(video input)
⊙ (video) and   to video and audio outputs
♪ (audio) inputs   : Signal flow

When connecting video equipment to the ⊖ (video input) jack
Do not connect video equipment to the ⊖ (video input) jacks at the front and the rear of your TV simultaneously; otherwise the picture will not be displayed properly on the screen.

Connecting audio/video equipment using the ⊖ (monitor output) jack

to antenna socket
Rear of TV
to antenna output   VCR
to ⊖
(monitor output)
⊙ (video) and   to video and audio inputs
♪ (audio) outputs   : Signal flow
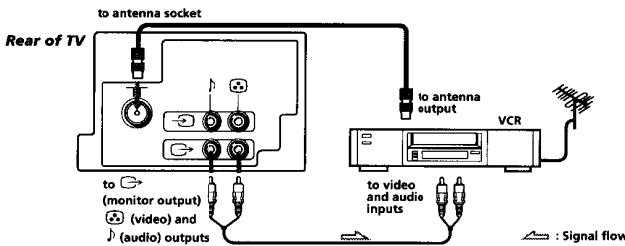
When recording through the ⊖ (monitor output) jack
Do not change the channel or video input while recording with a VCR; otherwise the channel or video input you are recording also will be changed.

Presetting channels

You can preset up to 100 TV channels in numerical sequence from program position 1 using the buttons on the remote commander or the TV.
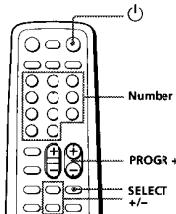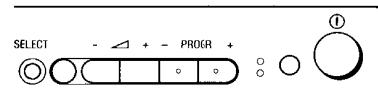
You can preset TV channels quickly, automatically or manually.
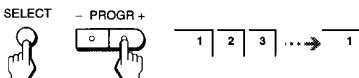
Remote commander

Front of TV

Quick channel presetting
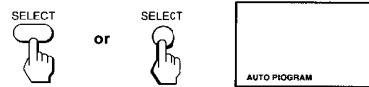
1 Press ① to turn on the TV.

When the TV is turned on in standby mode, press ① on the remote commander.

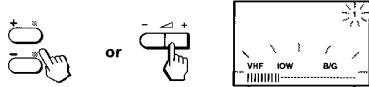**2** Press SELECT and PROGR + on the TV simultaneously for one to two seconds.

Presetting channels automatically

1 Press SELECT on the remote commander or the TV until "AUTO PROGRAM" appears on the screen.

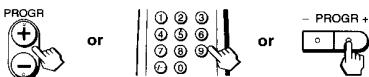**2** Press +/– on the remote commander or ⊿ +/– on the TV.

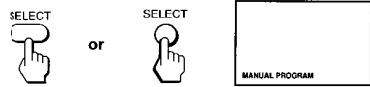**3** Press +/– on the remote commander or ⊿ +/– on the TV again.

To start presetting channels automatically from the specified program position
Press PROGR +/– or number buttons on the remote commander or PROGR +/–on the TV until the required program position appears on the screen after step 2 of "Presetting channels automatically".

Presetting channels manually

1 Press SELECT on the remote commander or the TV until "MANUAL PROGRAM" appears on the screen.

2 Press +/– on the remote commander or ⊿ +/– on the TV.

3 Press PROGR +/– or number buttons on the remote commander or PROGR +/– on the TV until the required program position appears on the screen.

4 Press +/– on the remote commander or ⊿ +/– on the TV until the required channel picture appears on the screen .
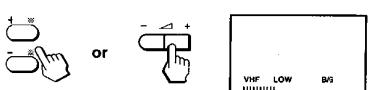
5 Press SELECT on the remote commander or the TV.

Disabling program positions

1 Press PROGR +/– or number buttons on the remote commander or PROGR +/– on the TV until the unused or unwanted program position appears on the screen.
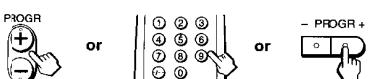
2 Press SELECT on the remote commander or the TV until "MANUAL PROGRAM" appears on the screen.

3 Press +/– on the remote commander or ⊿ +/– on the TV.

4 Press PIC MODE on the remote commander.

5 Press SELECT on the remote commander or the TV.

To preset the disabled program position again
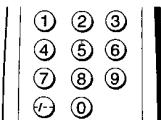Preset the channel quickly, automatically or manually.

Watching the TV

1 Press ⏻ to turn on the TV.

When the TV is turned on in standby mode, press ⏻ on the remote commander.

2 Select the TV program you want to watch.

To select a program position directly
Press the number button.

To select a two-digit program position, press "-/--" before the number buttons.
For example: to select program position 25, press "-/--," and then "2" and "5."

To scan through program positions
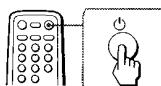Press PROGR +/- until the program position you want appears.

PROGR

3 Press ◁ +/- to adjust the volume.

Turning off the TV

To turn off the TV temporarily
Press ⏻ on the remote commander. The ○ indicator on the TV lights up.
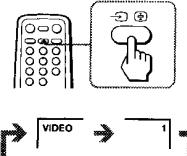
To turn off the TV completely
Press ⏻ on the TV.

If the power on the TV is turned off in standby mode, the ⏻ indicator on the TV may remain alight for a while.
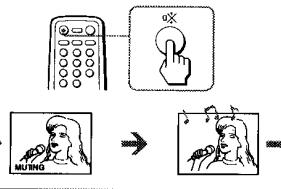
Watching the video input

Press ⊖ ⊕.

VIDEO → 1

To watch TV
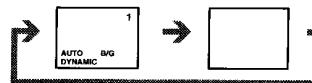Press ▭.

Muting the sound

Press ⊗.

MUTING

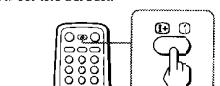## Displaying on-screen information

Press ⊞ ?.

The program position, local system, and TV settings are displayed on the screen.

AUTO B/G
DYNAMIC →

Setting the Wake Up Timer

You can set the TV automatically turned on as you program.

1 Press ⊕ ⊞ repeatedly to set the timer.
The on-screen display appears and the ⊕ indicator on the TV lights up.

WAKE UP TIMER:10M
After 10 minutes

WAKE UP TIMER:OFF   WAKE UP TIMER:12H00M
No wake up timer   After 12 hours

2 If you want a particular TV program or video input to be displayed using the Wake Up Timer, select the TV program or video input.

3 Press ⏻ on the remote commander or set the Sleep Timer to turn off the TV in standby mode.

To cancel the Wake Up Timer, press ⊕ ⊞ repeatedly until "WAKE UP TIMER: OFF" appears, or turn off the main power of the TV.

Notes
- The Wake Up Timer starts immediately after the on-screen display disappears.
- The last TV program position or video input just before the TV turns into standby mode will appear when the TV is turned on using the Wake Up Timer.
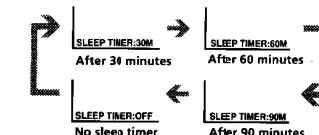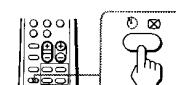
- If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up Timer, the TV automatically turns into standby mode. If you want to continue watching the TV, press any button or control on the TV or remote commander.

Setting the Sleep Timer

You can set the TV automatically turned off as you program.

Press ⊕ ⊗.

SLEEP TIMER:30M   SLEEP TIMER:60M
After 30 minutes   After 60 minutes

SLEEP TIMER:OFF   SLEEP TIMER:90M
No sleep timer   After 90 minutes

To cancel the Sleep Timer, press ⊕ ⊗ repeatedly until "SLEEP TIMER: OFF" appears, or turn off the TV.

Changing the on-screen display language

If you prefer Chinese to English, you can use buttons on the remote commander or the TV to change the on-screen display language.

+/-
SELECT
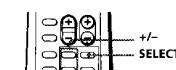
1 Press SELECT until the screen appears as follows:

SELECT

LANGUAGE / 语言 : ENGLSH

2 Press +/- to select "中文".

语言 / LANGUAGE : 中文
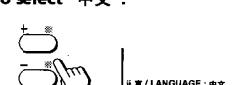
Note
- You can also use SELECT and ◁ +/- on the TV to select the on-screen display language.

Adjusting the picture

Note on the SOUND MODE button
• The sound mode feature is unavailable for your TV. Thus, the SOUND MODE button on the remote commander is not used for your TV.

SOUND MODE
+/-
SELECT
PIC MODE
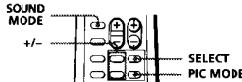
Selecting the picture mode

Press PIC MODE until the mode you want appears.

PIC MODE

Each time you press PIC MODE, the screen changes as follows:

High contrast picture → Soft picture (good for video games) → Normal picture

DYNAMIC → SOFT → STANDARD

Note
▸ If you change the picture mode after the following adjustments, the adjustment changes in accordance with the picture mode.

Adjusting the picture setting

1 Press SELECT until the item you want to adjust appears.

SELECT

Each time you press SELECT, the screen changes as follows:

PICTURE → COLOR → BRIGHT

↑ ↓

(Operative for NTSC signal only)

SHARPNESS ← HUE

2 Press +/- to adjust the item.

3 To adjust other items, repeat steps 1 and 2.

Note
• You can also use SELECT and ◁ +/- on the TV to adjust the picture setting.

Front of TV

SELECT -⊕ – ◁ + – PROGR +
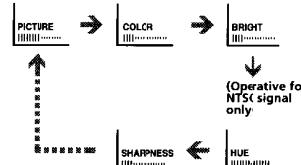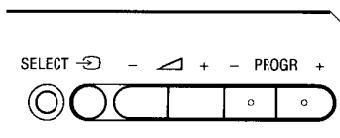
If the picture color is abnormal when receiving programs through the T (antenna) terminal or the -⊕ (video input) jack
Change the "COLOR SYSTEM" setting or adjust the "COLOR" level in the on-screen display until the color becomes normal.

Note
• Normally set "COLOR SYSTEM" to "AUTO".

Troubleshooting

If you have any problems, read this manual again and check the countermeasure for each of the symptoms listed below.
If the problem persists after trying the methods below, contact your nearest authorized servicecenter or dealer.

Snowy picture
Noisy sound

→ Check the antenna.
→ Check the antenna connection on the TV and on the wall.

Dotted lines or stripes

→ This may be caused by local interference (e.g. cars, neon signs and hair dryers). Adjust the antenna for minimum interference.

Double images or "ghosts"

→ This may be caused by reflections from nearby mountains or buildings. A highly directional antenna may improve the picture.

Good picture
No sound

→ Press ◁ +.
→ Press ⁿ✕.

No picture
No sound

→ Press ⊕ or ⏻.
→ Check the antenna connection.
→ Check the VCR connections.
→ Check the power cord connection.
→ Check the standby mode.

No color

→ Adjust the "COLOR" level in the on-screen display.
→ Check the "COLOR SYSTEM" setting.

TV cabinet creaks

→ Even if the picture or the sound is normal, changes in the room temperature sometimes make the TV cabinet expand or contract, making a noise. This does not indicate a malfunction.

Note on the remote commander
• The supplied remote commander is used on several models of the TV. If you do not find instructions for some controls that are on the remote commander, that means your TV does not employ the features of those controls, e.g. ⊞ and SOUND MODE.

Notes
• When you turn on the TV, you may hear the "boon" sound that is caused by the demagnetization of the TV. This does not indicate a malfunction.
• The picture color may become abnormal if you change the direction of your TV. To obtain the normal picture color, press ⊕ on the TV to turn off the TV for five minutes and then turn it on again.
• Design and specifications are subject to change without notice.
• All contents in the instruction manual are subject to change without notice.

WARNING
Do not install the appliance in a confined space, such as a bookcase or built-in cabinet.

8

SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL

① Four screws
(BVTP 4×16)

② Two screws
(BVTP 4×16)

2-2. A BOARD REMOVAL

Lever

Lever
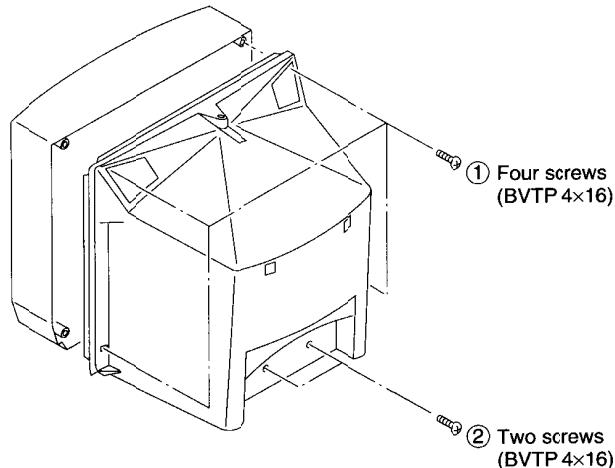
A board

2-3. F1 BOARD REMOVAL

F1 board
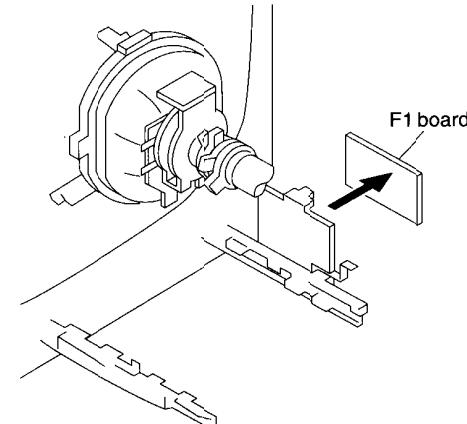
2-3. SERVICE POSITION

A board
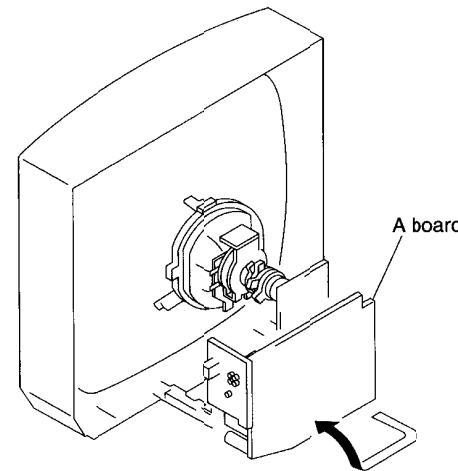
2-5. REPLACEMENT OF PARTS

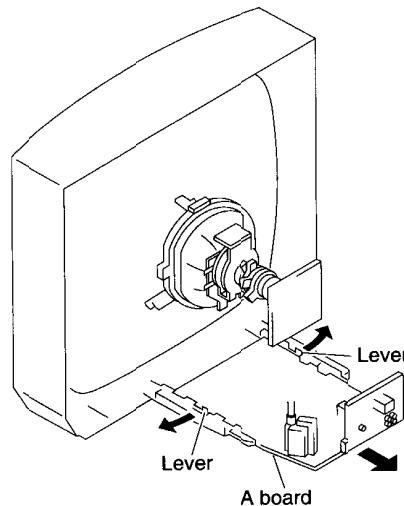For replacement of the Multi Button and Light Guide, cut the welded portions
from them, exchange with the new parts, and fix them with screws (+BVTP) respectively.

2-5-1. REPLACEMENT OF MULTI BUTTON

Cut

Multi button

Cut

Multi button

Three screws
(BVTP 3×12)

• SCREWING TORQUE
7±1 kg•cm
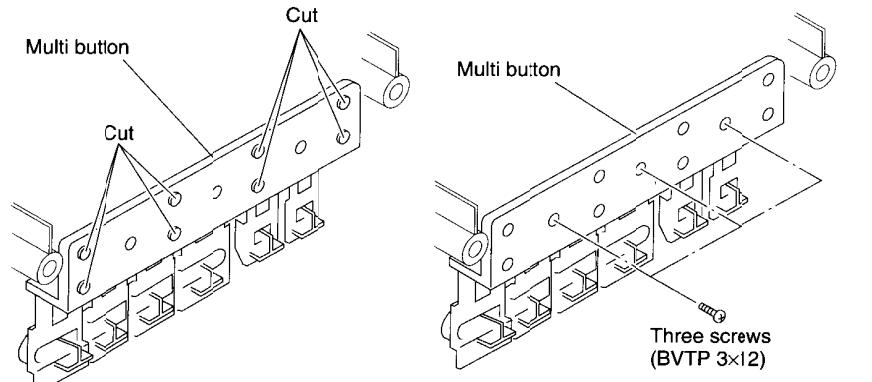
2-5-2. REPLACEMENT OF LIGHT GUIDE

Cut

Light guide

Light guide

Two screws
(BVTP 3×12)

Cut

• SCREWING TORQUE
7±1 kg•cm
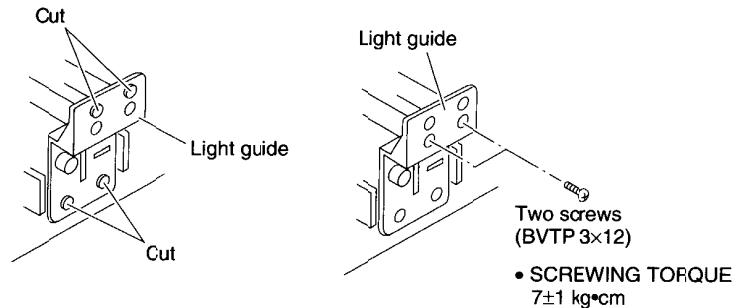
2-6. TERMINAL BOARD BRACKET REMOVAL

Terminal board bracket

Terminal board bracket

Two claws

A board

A board
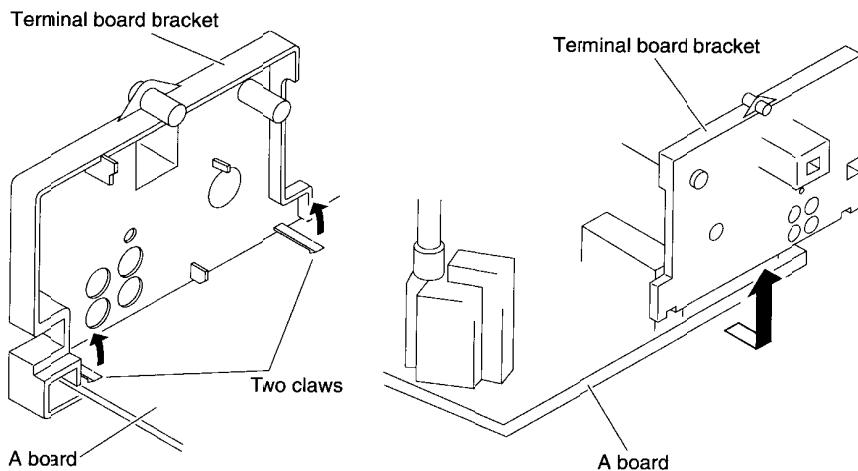
2-7. DEMAGNETIZATION COIL REMOVAL

① Demagnetization coil

② Tension spring
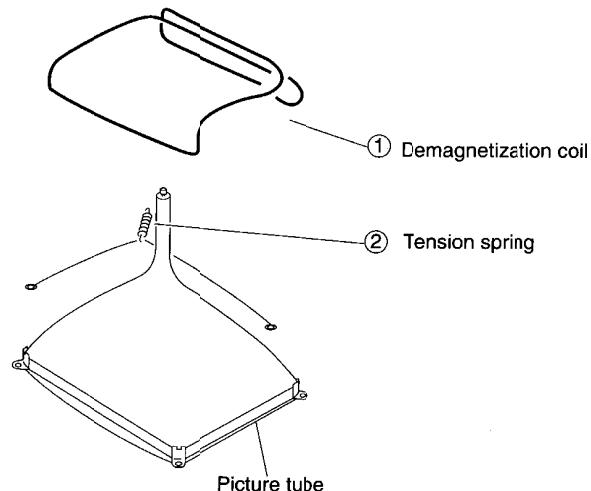
Picture tube

2-8. PICTURE TUBE REMOVAL

③ F1 board

④ C board

⑤ Deflection yoke

⑥ Four screws
(Tapping screws)

② A board

① Anode cap

Cushion
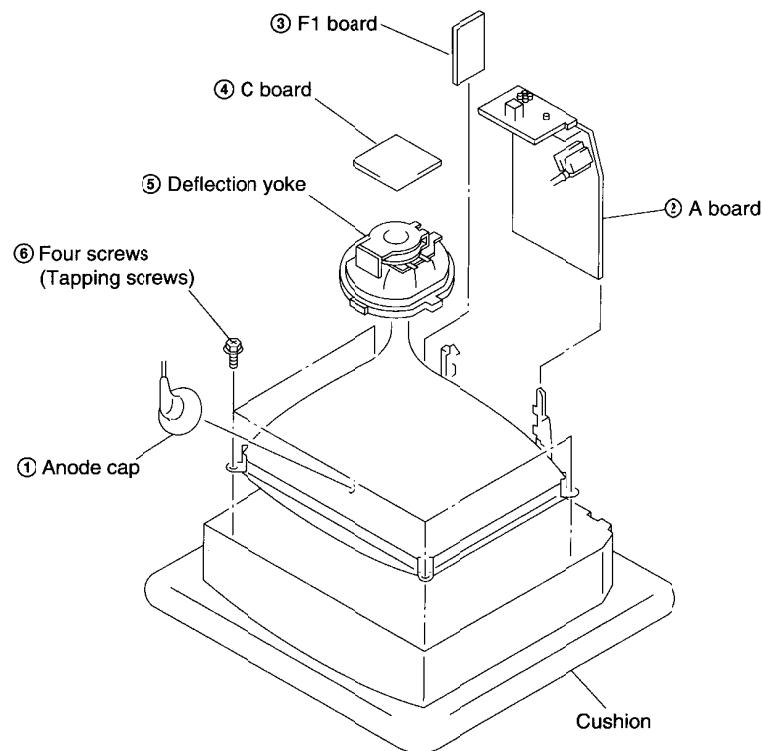
• REMOVAL OF ANODE-CAP

NOTE : After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.

• REMOVING PROCEDURES

ⓐ

ⓐ
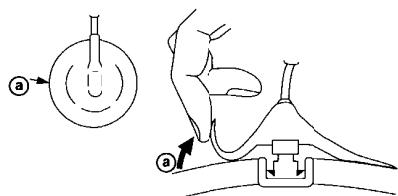
① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.

ⓑ

ⓑ
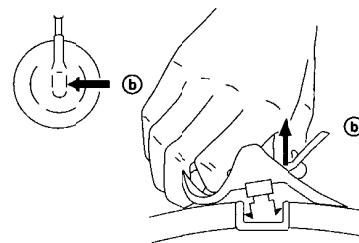
② Using a thumb press down, then pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

ⓒ
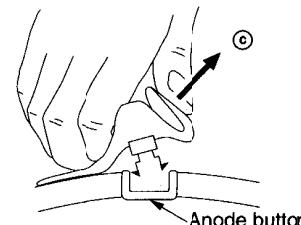
Anode button

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.

• HOW TO HANDLE AN ANODE-CAP

① Do not damage the surface of anode-cap with sharp shaped objects.
② Do not press the rubber too hard so as not to damage the inside of anode-cap.
A metal fitting called the shatter-hook terminal is built into the rubber.
③ Do not turn the foot of rubber over too hard.
The shatter-hook terminal will stick out or damage the rubber.
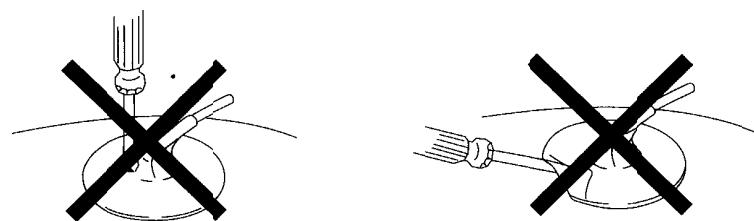
SECTION 3
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switch should be set as follows unless otherwise noted:
PICTURE control.. normal
BRIGHTNESS control... normal

Perform the adjustments in the following order:
1. Beam Landing
2. Convergence
3. Focus
4. White Balance
   Note : Test Equipment Required:
   1. Color-bar/Pattern Generator
   2. Degausser
   3. Oscilloscope

Preparation :
- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the power and degauss with the degausser.

3-1. BEAM LANDING
1. Input a white signal with the pattern generator.
   Contrast
   Brightness } normal
2. Set the pattern generator raster signal to green.
3. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.
   (See Figures 3-1 through 3-3.)
4. Move the deflection yoke forward and adjust so that entire screen is green. (See Figure 3-1.)
5. Switch the raster signal to blue, then to red and verify the condition.
6. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Figure 3-4.)
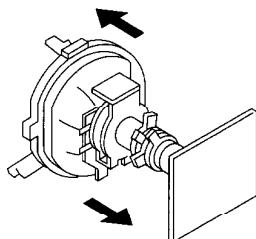
Fig. 3-1

Purity control

Fig. 3-2

BLUE   RED
GREEN

Fig. 3-3

Purity control corrects this area.

Disk magnets or rotatable disk magnets correct these areas (a-d).

Deflection yoke positioning corrects these areas.
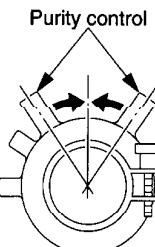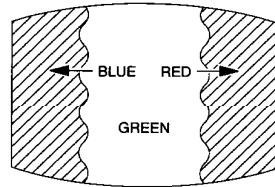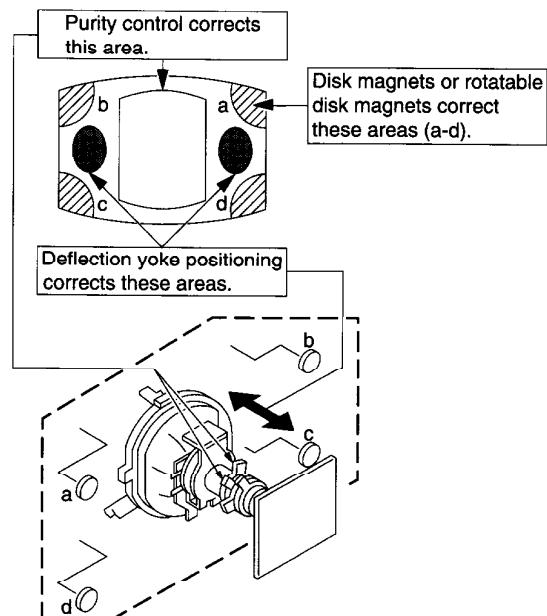
Fig. 3-4

3-2. CONVERGENCE

Preparation :

* Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
* Minimize the brightness setting.
* Provide dot pattern.

(1) Horizontal and Vertical Static Convergence
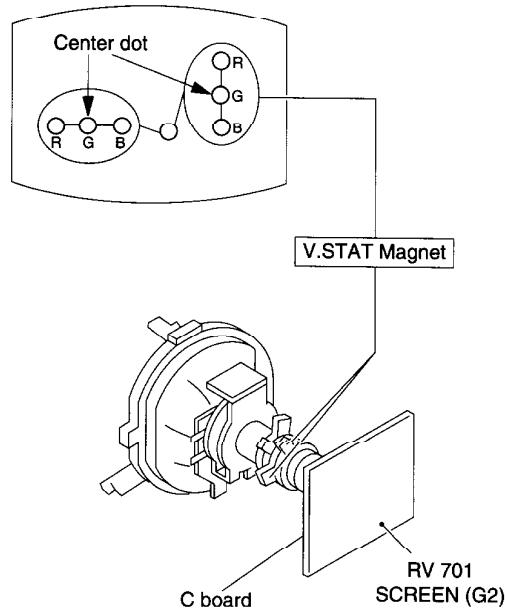
1. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.
2. (Moving horizontally), adjust the H.STAT VR so that the red, green and blue dots are on top of each other at the center of the screen.
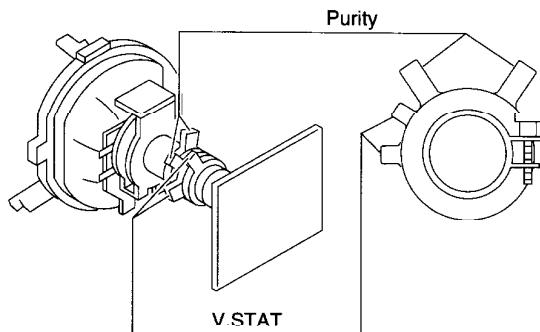
* Operation of V.STAT magnet.
  If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green and blue dots move as shown below.
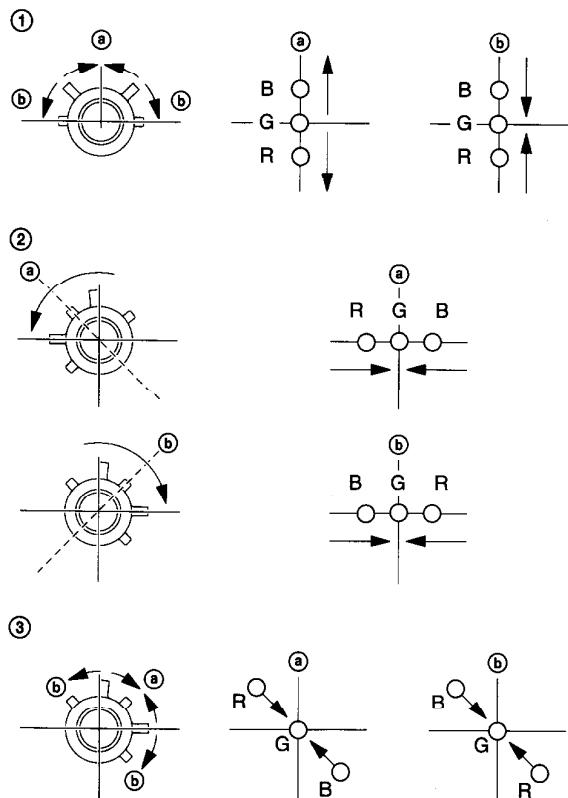
* Operation of BMC (Hexapole) magnet.
  If the blue or red dot does not converge with the other two dots, perform following steps.
  Move BMC magnet (a) to correct insufficient H.static convergence.
  Rotate BMC magnet (b) to correct insufficient V.static convergence.
  In either case, repeat Beam Landing Adjustment.
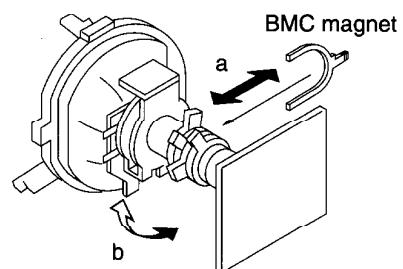
(2) Dynamic Convergence Adjustment

Preparation :

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the deflection yoke spacer.
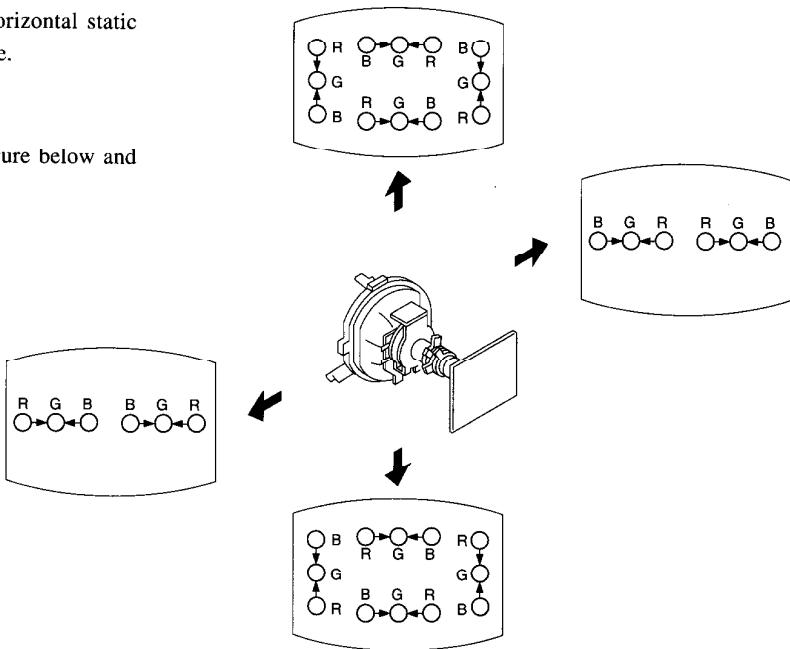
(3) Screen-corner Convergence

a-d : screen-corner misconvergence

Fix a Permalloy assy corresponding to the misconverged areas

a to d : Permalloy assembly
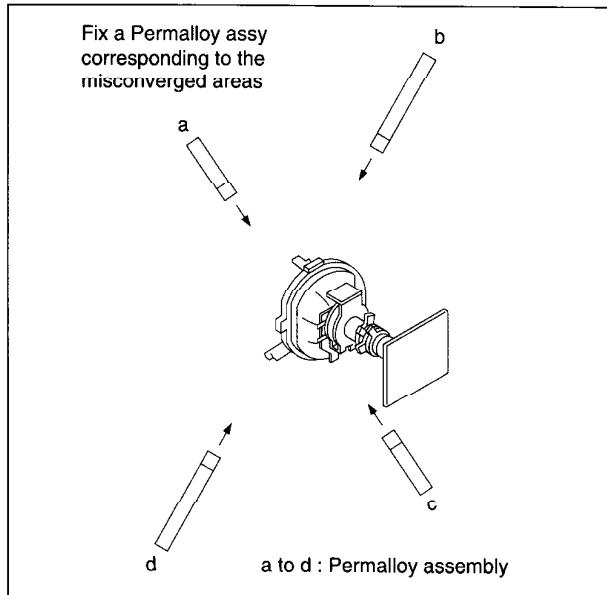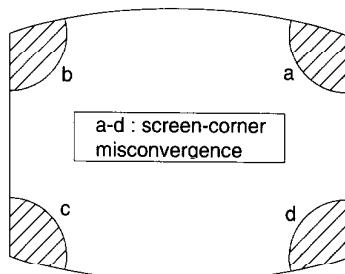
3-3. FOCUS ADJUSTMENT

Adjust FOCUS control on the flyback transformer for the best focus.

FOCUS
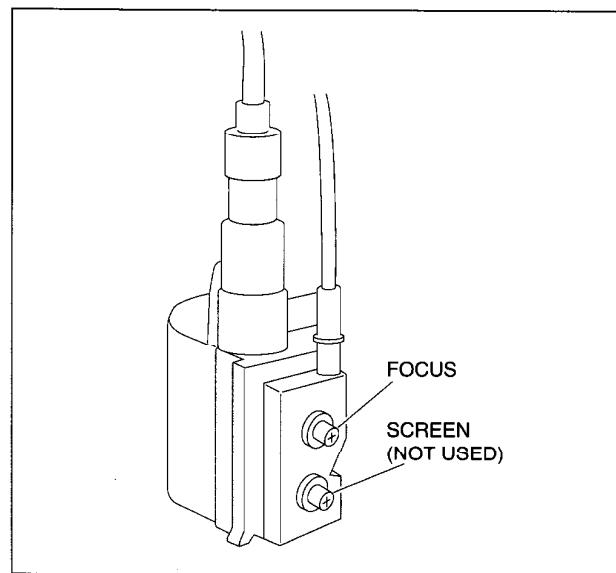
SCREEN (NOT USED)

Note: Screen VR is not used.

a. AN ITEM OF ADJUSTMENT

Item number	Adjustment Item	Initial DATA	Note
09	RDR	3F	WHITE POINT R
0A	GDR	3F	WHITE POINT G
0B	BDR	3F	WHITE POINT B

b. METHOD OF CANCELLATION FROM SERVICE MODE

Set the standby condition (Press POWER button on the commander) and then press POWER button again, hereupon it becomes TV mode.

c. METHOD OF WRITE FOR MEMORY

1) Set to Service Mode.
2) Press 1 (UP) and 4 (DOWN) to select an item of adjustments.
3) Press MUTING button and it will indicate WRITE on screen.
4) Press 0 button to write into memory.

d. MEMORY WRITE CONFIRMATION METHOD

1) After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
2) Turn the power switch ON and set to Service Mode.
3) Call the adjusted items again, confirm they were adjusted.

```
09  RDR  1 F    SERVICE
052S  V3.2C   00     60
     ↑      ↑      ↑      ↑
                       PAL or
                       NTSC
                German A2 Stereo
         Software Version #
 OEM CODE
```

```
09  RDR  1 F    WRITE ◄──── MUTING
052S  V3.2C   00     60
                          ↓ Green
                          0
                    Executes the writing
```

```
09  RDR  1 F    WRITE
                     ◄──── 0
               Executes the writing
               (bottom line disappears)
```
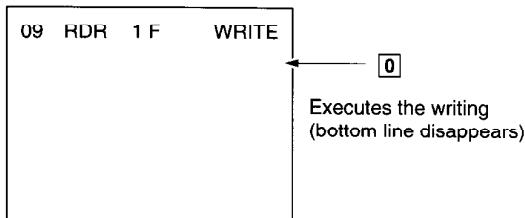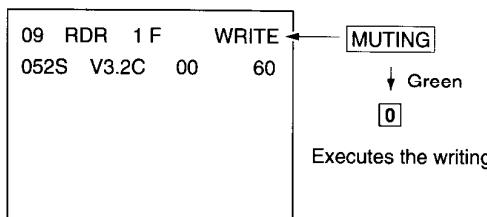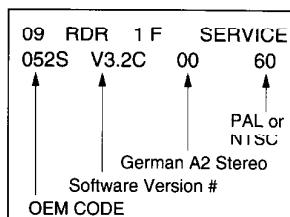
3-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G2 (SCREEN) ADJUSTMENT (RV701)

1) Set the PICTURE and BRIGHTNESS to normal.
2) Put to VIDEO input mode without signals.
3) Connect R, G and B of the C board cathode to the oscilloscope.
4) Adjust G2 (RV701) volume to the value below.

177 ± 2 V DC

0 V
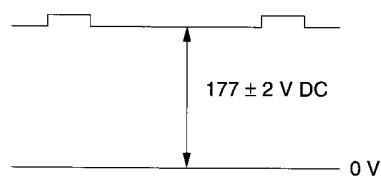
2. WHITE BALANCE ADJUSTMENTS

1) Set to Service Mode.
2) Input an entire white signal.
3) Set the PICTURE to maximum.
4) Select RDR(09) with 1 and 4 , and then set the level to 25 with 3 and 6 .
5) Select GDR(0A) and BDR(0B) with 1 and 4 , and adjust the level with 3 and 6 for the best white balance.
6) Write into the memory by pressing MUTING , then 0 .

SECTION 4
SELF DIAGNOSIS FUNCTION

If no acknowledgement is returned from a device which is turned "ON", the device has a problem.
In this case, one of the LED's responding to the problem device will flicker a defined number of times.

Flickering is operated by lighting the LED's for 60ms each time.

The flickering frequency responding to each failed device is shown below.

Board name	A Board	A Board
Ref. No.	IC003	IC300
Device	NONVOLATILE MEMORY (ST24C04FB6)	Y/C JUNGLE (TDA8375A)
Flickering Frequency	1	3

All the devices are checked one after another from the left of the table.
If an error is found, the responding LED will start flickering.
So, if more than 1 device have failed, only the one on the left side will flicker.

SECTION 5
CIRCUIT ADJUSTMENTS

5-1. ADJUSTMENTS WITH COMMANDER

Service adjustments are made with the RM-869 that comes with this unit.

Entering service mode

With the unit on standby

↓

DISPLAY

↓

5

↓

VOL (+)

↓

POWER

The operation sequence puts the unit into service mode.

RM-869
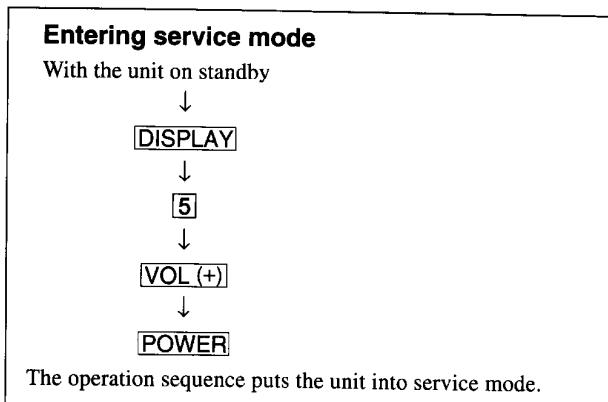
1, 4	Raise/lower the service item number
3, 6	Raise/lower the data
MUTING	Writes
0	Executes the writing

7, 0	All data becomes the values in memory
8, 0	All user control goes to the standard state
5, 0	Service data initialization (Be sure not to use usually.)
2, 0	Write 50Hz adjustment data to 60Hz, or viceversa.

The screen display is :

① Adjustment item

②
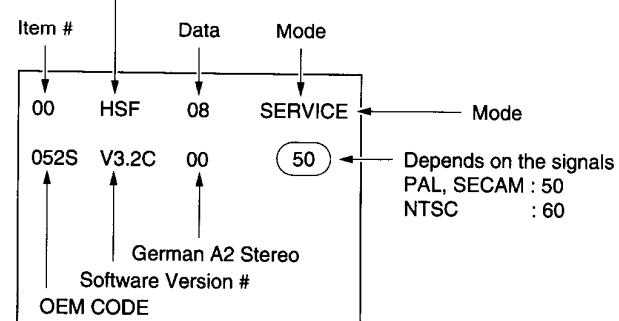
(Bit options adjustable)
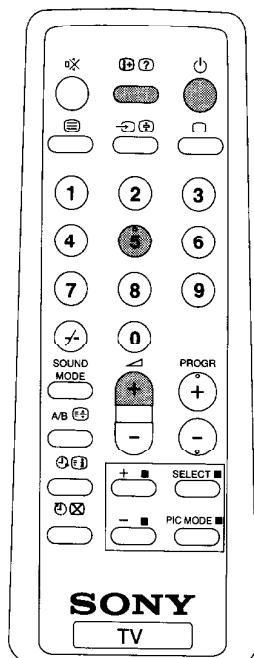
1, 4	Select the adjustment item.
↓	
3, 6	Raise/lower the data.
↓	
MUTING	Writes
↓	
0	Executes the writing.

5-2. ADJUSTMENT METHOD

Item Number 08

This explanation uses V-SHIFT as an example.

1. Select 08 V-SHIFT with the $\boxed{1}$ and $\boxed{4}$ buttons.
2. Raise/lower the data with the $\boxed{3}$ and $\boxed{6}$ buttons.
3. Select the optimum state. (The standard is 0F for PAL reception.)
4. Write with the $\boxed{\text{MUTING}}$ button.
5. Execute the writing with the $\boxed{0}$ button. (The WRITE display returns to green SERVICE.)

Use the same method for Items Number 00-40. Use $\boxed{1}$ and $\boxed{4}$ to select the adjustment item, use $\boxed{3}$ and $\boxed{6}$ to adjust, write with $\boxed{\text{MUTING}}$, then execute the write with $\boxed{0}$.
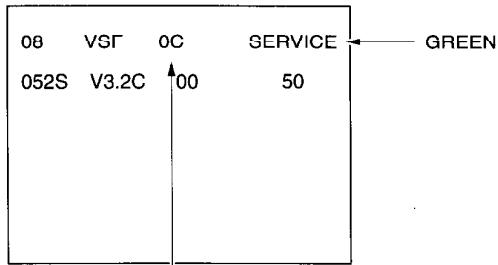
```
08    VSГ    0C       SERVICE  ◄──── GREEN

052S  V3.2C  ↑00       50
```
Adjusted with $\boxed{3}$ and $\boxed{6}$ buttons

```
08    VSF    0C       WRITE   ◄──── GREEN

052S  V3.2C   00        50
```
Written with $\boxed{\text{MUTING}}$
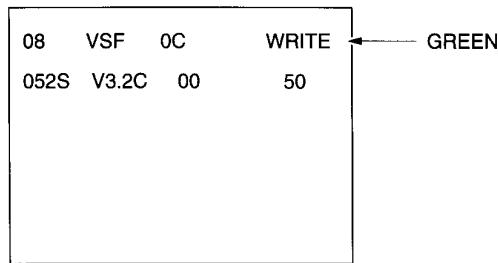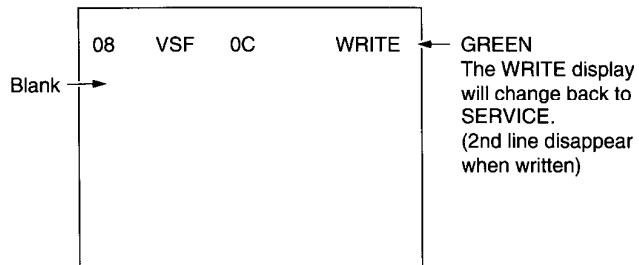
```
08    VSF    0C       WRITE   ◄── GREEN
                                The WRITE display
Blank ──►                       will change back to
                                SERVICE.
                                (2nd line disappear
                                when written)
```
Write executed with $\boxed{0}$

Adjustment Item Table

Item No.	Adj. Item	Data Range	Initial Data	Note for Different Data			Function	Device
00	HSF	00–3F		50: 2C	60: 33		H Shift	TDA8375
01	HSZ	00–3F		50: 35	60: 35		H Size	TDA8375
02	PAP	00–3F		50: 25	60: 25		Pin Amplitude	TDA8375
03	CNP	00–3F		50: 10	60: 0C		Corner Pin	TDA8375
04	TLT	00–3F		50: 20	60: 2D		Tilt	TDA8375
05	VSL	00–3F		50: 1F	60: 1F		V Slope	TDA8375
06	VAP	00–3F		50: 1C	60: 1B		V Amplitude	TDA8375
07	SCR	00–3F		50: 16	60: 16		S Correction	TDA8375
08	VSF	00–3F		50: 10	60: 10		V Shift	TDA8375
09	RDR	00–3F	28				R Drive	TDA8375
0A	GDR	00–3F	20				G Drive	TDA8375
0B	BDR	00–3F	20				B Drive	TDA8375
0C	FO	00–03		TV: 00	VIDEO: 00	TEXT: 00	ø1 TIME CONSTANT	TDA8375
0D	AGC	00–3F		TV: 28	VIDEO: 28	TEXT: 28	AGC Take Over	TDA8375
0E	VSW	00–01		TV: 00	VIDEO: 01	TEXT: 00	Video Mute Switch	TDA8375
0F	FOR	00–03	03				Forced Field Frequency	TDA8375
10	DL	00–01	00				De-interlace	TDA8375
11	POC	00–01	00				Fixed ø1 Synchro. Mode	TDA8375
12	COR	00–01		TV: 01	VIDEO: 00	TEXT: 00	Noise Coring	TDA8375
13	VPX	00–FF	00				Extra Bits (see below)	TDA8375
14	PMX	00–3F		TV: 2B	VIDEO: 2B	TEXT: 19	Picture Maximum Data	TDA8375
15	PMI	00–3F	04				Picture Maximum Data	TDA8375
16	SBR	00–7F	4B				Sub Brightness	TDA8375
17	SHU	00–0F	09				Sub Hue	TDA8375
18	SSH	00–03		TV: 01	VIDEO: 03		Sub Sharpness	TDA8375
19	SC1	00–3F		50: 26	60: 29		Sub Color Lower	TDA8375
1A	SC2	00–3F		50: 0C	60: 0D		Sub Color Higher	TDA8375
1B	AIP	00–7F	3F				Adjustment IF-PLL	TDA8375
1C	VZM	00–3F	19				Vertical Zoom	TDA8375
1D	WST	00–FF	15				W/G Stereo Threshold	MSP3410D
1E	WBT	00–FF	EB				W/G Bilingual Threshold	MSP3410D
1F	WLL	00–FF	05				W/G Monaural Threshold	MSP3410D
20	ACG	00–01	01				ACG Switch auto/constant	MSP3410D
21	CDB	00–3F	28				ACG Gain at Constant Mode	MSP3410D
22	FGP	00–7F	24				FM Prescale for B/G, I. DK	MSP3410D
23	FMP	00–7F	40				FM Prescale for M	MSP3410D
24	FMH	00–7F	20				FM Prescale for HDEV Mode	MSP3410D
25	WGP	00–7F	3C				W/G Prescale	MSP3410D
26	NIP	00–7F	7F				NICAM Prescale	MSP3410D
27	SCP	00–7F	20				SCART Input Prescale	MSP3410D
28	SCV	00–7F	20				SCART Output Prescale	MSP3410D
29	CRM	00–01	00				Carrier Muting on/off	MSP3410D
2A	ACD	00–01	01				Audio Clock-out on/off	MSP3410D
2B	AWC	00–0F	01				W/G Agreement Count	MSP3410D
2C	NFT	00–FF	50				Auto FM Switch Threshold	MSP3410D
2D	DLG	00–FF	30				W/G Search Delay	MSP3410D
2E	DLN	00–FF	10				NICAM Search Delay	MSP3410D
2F	DLS	00–FF	0A				Stereo Status Read Delay	MSP3410D
30	SMX	00–7F	72				DFP Volume Maximum	MSP3410D
31	ING	00–0F		M: 00	non-M: 00	VIDEO: 00	Input Gain	TDA7438
32	VOM	00–3F	01				Volume Output Gain	TDA7438
33	TXH	00–03	01				Teletext Horizontal Position	SAA5261
34	BKP	00–3F	00				Picture Data at Blanking OFF	Other Control
35	ODL	00–FF	10				Power on Delay	Other Control
36	OFR	00–0F	00				RGB Output Time (STBY OFF)	Other Control

Item No.	Adj. Item	Data Range	Initial Data	Note for Different Data	Function	Device
37	OFM	00–0F	00		RGB Output Time (AC OFF)	Other Control
38	OSH	00–3F	0A		OSD H POSITION	Other Control
39	DSK	00–01	00		D/K Stereo enable/disable	TDA8375
3A	MUT	00–01	00		Muting on/off at No. Sync	Other Control
3B	ABL	00–01	00		Bright ABL Switch	Other Control
3C	SCM	00–01	00		SECAM Trap active/inactive	Other Control
3D	FBT	00–01	01		FBT L/S C/M stract/plain	Other Control
3E	OP0	00–FF	4F		Optional Flags 0 (see below)	Other Control
3F	OP1	00–FF	0F		Optional Flags 1 (see below)	Other Control
40	OP2	00–FF	00		Optional Flags 2 (see below)	Other Control

NOTE

• Note for Different Data   Those are the standard data values written on the microprocessor. Therefore, the data values of the modes are stored respectively in the memory.
In case of a device replacement, adjustment by rewriting the data value is necessary for some items.

• 50 .... 50 Hz data

• 60 .... 60 Hz data

• Note for Different Data listed on the adjustment item table are reference values, therefore it is different for every model.

Option Note

Item No. 13 VPX

Item	HCO	EVG	SBL	PRD	–	–	–	VID
Initial data	0	0	0	0	0	0	0	0

HCO   EHT Tracking Mode   1 = on V and E–W.   0 = only on V
EVG   Enable Vertical Guard   1 = enable.   0 = disable
SBL   Service Blanking   1 = active.   0 = inactive
PRD   Over-voltage Protection Detection   1 = enable.   0 = disable
VID   Video Ident Mode   1 = not for ø1-loop   0 = for ø1-loop

Item No. 3E OP0

Item	No TOP	AV input		AVMUT	B/G	I	D/K	M
Initial data	0	1	0	0	1	1	1	1

AV Input   0   0   no AV input model   0   1   1 AV input model
                1   0   2 AV input model   1   1   2 AV input and RGB input model
No TOP (for teletext model)   1 = only FLOF available.   0 = both FLOF and TOP available
AV MUT   1 = AV multi is always muted if no signal input.   0 = not muted always
Other optional bits are effective if set to 1.

Item No. 3F OP1

Item	No NICAM	–	HDEV	1 V-Curve	XTAL SEL		SECAM	2nd Lang.
Initial data	0	0	0	0	1	1	1	1

XTAL SEL   0   0   only 4.43 XTAL   0   1   only 3.58 XTAL
               1   0   (not used)   1   1   both 4.43 and 3.58 XTAL
1 V-Curve (for monaural model)
            1 = using common volume curve for every mode and every TV system
            0 = another volume curve available for video mode and M system
HDEV   1 = High Deviation Mode switch available.   0 = not available
Other optional bits are effevctive if set to 1.

Item No. 40 OP2

Item	–	–	No. Bal	TV Out	Hotel	VM	D.B.F.B.	Thai Bil.
Initial data	0	0	0	0	0	0	0	0

No Bal. (for AV stereo model)   1 = no balance in analog select items.   0 = balance included
Other optional bits are effective if set to 1.
Hotel TV mode should be switched with remote commander from STBY condition as below.
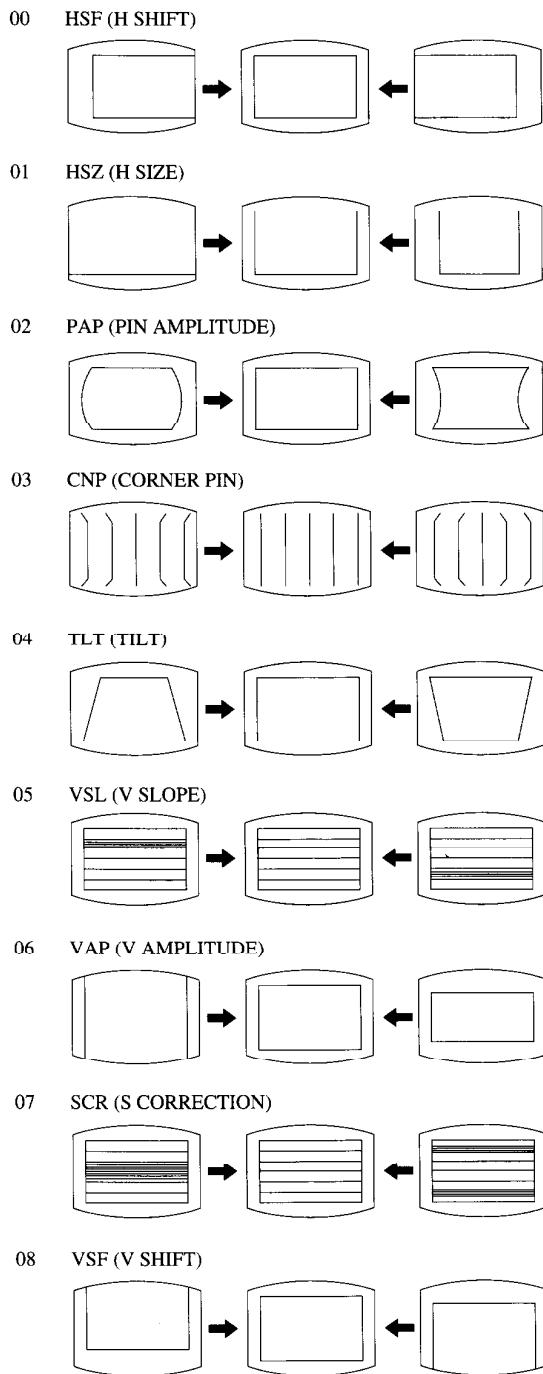   Hotel TV on : push "display". "8". "vol +" and "power" sequentially
         Hotel TV off : push "display". "8". "vol –" and "power" sequentially

5-3. A BOARD ADJUSTMENT AFTER IC003 (MEMORY) REPLACEMENT

1. Enter to Service Mode.

2. Press commander buttons 5 and 0 (Data Initialize), and 2 and 0 (Data Copy) to initialize the data.

3. Call each item number, and check if the respective screen shows the normal picture.
   In case some items are not well-adjusted, give them fine adjustment.
   Write the data per each item number (MUTING + 0).

4. Select item numbers "3E" (OP0), "3F" (OP1) and "40" (OP2) and respectively set the bit per model with command buttons 3 and 6.

5. Press commander buttons 8 and 0 (Test Normal) to return to the data that was set on the shipment from the factory.
   (= Cancel Service Mode.)

5-4. PICTURE DISTORTION ADJUSTMENT

Item Number 00 – 08

00 HSF (H SHIFT)

01 HSZ (H SIZE)

02 PAP (PIN AMPLITUDE)

03 CNP (CORNER PIN)

04 TLT (TILT)

05 VSL (V SLOPE)

06 VAP (V AMPLITUDE)

07 SCR (S CORRECTION)

08 VSF (V SHIFT)

DIAGRAMS

6-1. BLOCK DIAGRAM

A

SYS CONTROLLER, TU, MEMORY
IF, Y/C JUNGLE, H/V OUT
POWER SUPPLY, SECAM DECODER
AUDIO/VIDEO INPUT

C (RGB OUT)

V901 PICTURE TUBE

NECK ASS'Y

VM

VM OUT, ROTATION, V-PIN DF CIRCUIT

DY ASS'Y
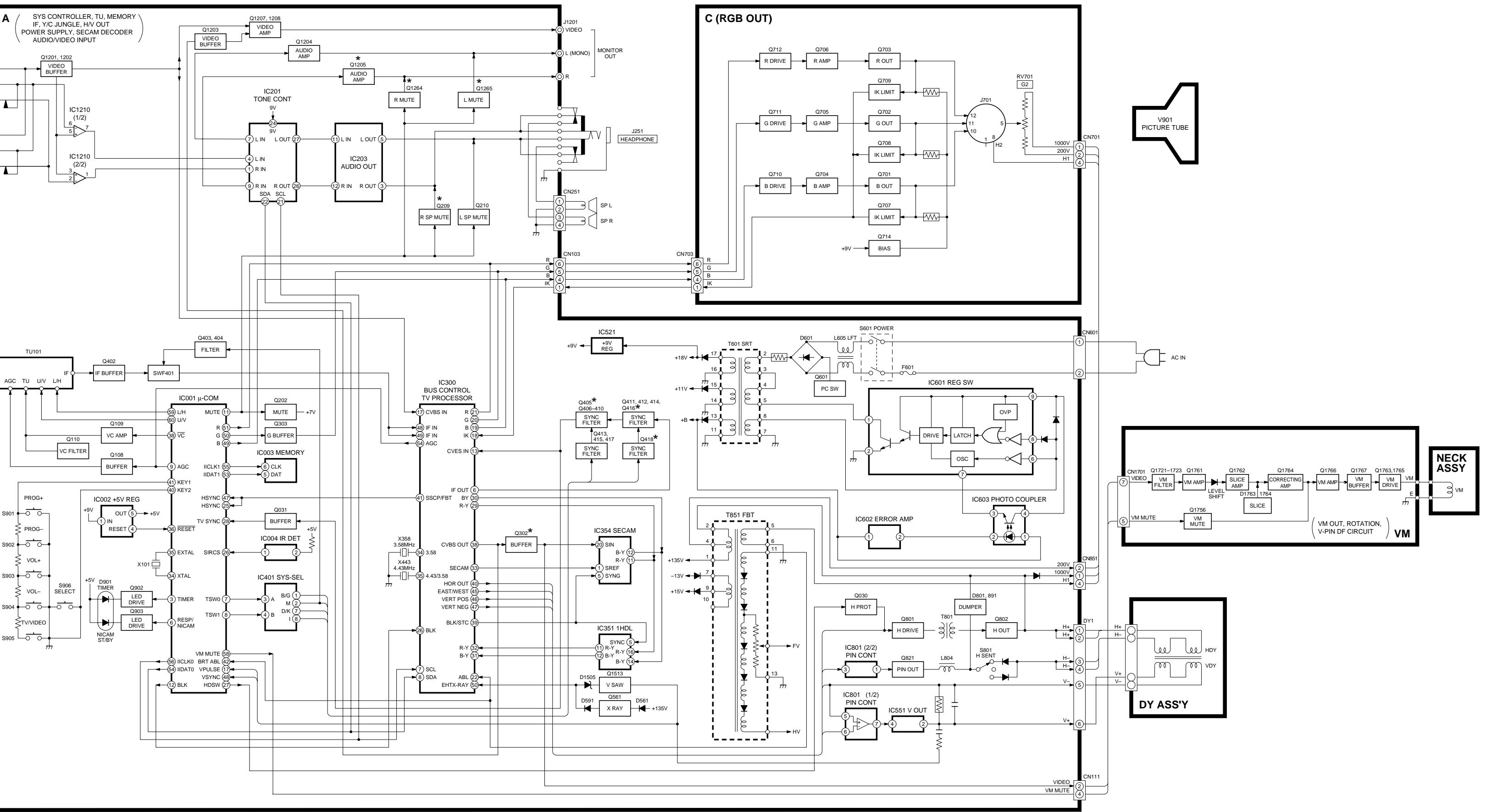
6-2. CIRCUIT BOARDS LOCATION

VM

C

A
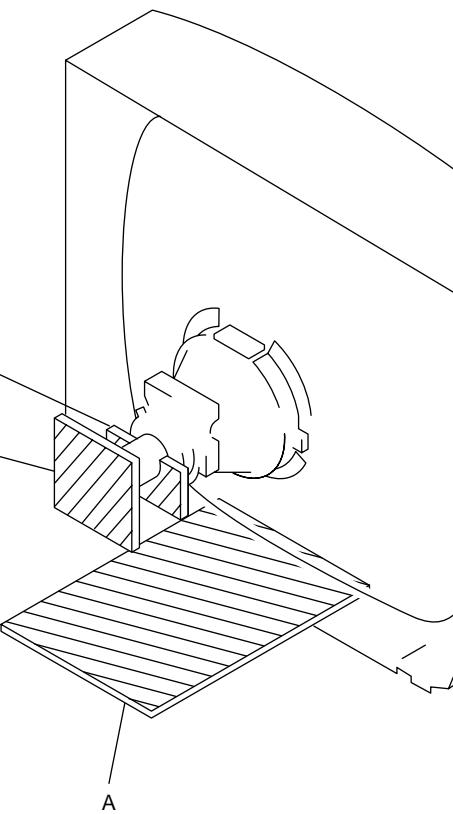
6-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:
- All capacitors are in μF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000kΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

  Pitch: 5 mm
  Rating electrical power 1/4W (CHIP: 1/10W)

- : nonflammable resistor.
- : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a color-bar signal input.
  no mark : PAL
  ( ) : SECAM
  « » : NTSC 3.58
  《 》 : NTSC 4.43
- Readings are taken with a 10 MΩ digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
  * : Can not be measured.
- Circled numbers are waveform reference.
- ▬▬▬ : B + bus.
- ▬ ▬ ▬ : B − bus.
- ⟹ : signal path.
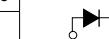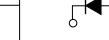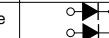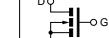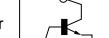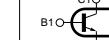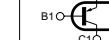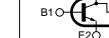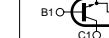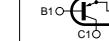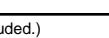
Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFRAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: *	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note:The component identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Terminal name of semiconductors in silk screen printed circuit (   )

	Device	Printed symbol	Terminal name	Circuit
①	Transistor		Collector / Base / Emitter	
②	Transistor		Collector / Base / Emitter	
③	Diode		Cathode / Anode	
④	Diode		Cathode / Anode (NC)	
⑤	Diode		Cathode / Anode (NC)	
⑥	Diode		Common / Anode / Cathode	
⑦	Diode		Common / Anode / Cathode	
⑧	Diode		Common / Anode / Anode	
⑨	Diode		Common / Anode / Anode	
⑩	Diode		Common / Cathode / Cathode	
⑪	Diode		Common / Cathode / Cathode	
⑫	Diode		Anode / Cathode / Cathode / Anode	
⑬	Transistor (FET)		Drain / Source / Gate	
⑭	Transistor (FET)		Drain / Source / Gate	
⑮	Transistor (FET)		Source / Drain / Gate	
⑯	Transistor		Emitter / Collector / Base	
⑰	Transistor			
⑱	Transistor			
⑲	Transistor			
⑳	Transistor			
㉑	Transistor			
㉒	Transistor			
㉓	Transistor			
—	Discrete semiconductot			

(Chip semiconductors that are not actually used are included.)

Ver 1.5

A │ SYS CONTROLLER, TU, MEMORY, IF, Y/C JUNGLE, H/V OUT,
│ POWER SUPPLY, SECAM DECODER, AUDIO/VIDEO INPUT │

A BOARD

IC

IC001	D–11
IC002	E–10
IC003	E–10
IC004	I–13
IC100	E–7
IC201	B–8
IC203	B–10
IC300	D–4
IC351	D–8
IC354	D–7
IC401	B–7
IC521	E–8
IC551	J–6
IC601	J–8
IC602	H–7
IC603	H–7
IC801	F–6
IC1210	A–2

TRANSISTOR

		*
Q030	C–12	①
Q108	D–2	①
Q109	E–12	①
Q110	E–3	①
Q202	C–9	
Q207	C–9	①
Q208	B–10	①
Q209	B–9	①
Q210	B–10	①
Q301	C–7	③
Q302	D–7	①
Q303	D–8	①
Q402	D–4	①
Q403	E–4	①
Q404	C–6	①
Q405	C–6	①
Q406	B–7	①
Q407	B–6	①
Q408	C–7	①
Q409	C–6	①
Q410	C–6	①
Q411	C–6	①
Q412	C–5	①
Q413	B–5	①
Q414	C–5	①
Q415	B–5	①
Q416	C–5	①
Q417	B–6	①
Q418	B–6	①
Q561	I–6	–
Q801	D–2	–
Q802	F–1	–
Q821	E–6	–
Q902	D–10	①
Q903	D–11	①
Q1201	A–3	①
Q1202	A–3	①
Q1203	A–2	①
Q1204	A–2	①
Q1205	B–2	①
Q1207	A–2	①

Q1208	B–2	①
Q1209	C–4	①
Q1264	C–1	①
Q1265	C–1	①
Q1513	G–6	①

DIODE

		*
D001	D–9	–
D002	C–12	–
D003	C–10	③
D005	E–8	–
D008	H–13	–
D103	D–1	⑥
D201	B–9	③
D251	B–8	③
D252	F–12	④
D253	C–9	③
D301	D–8	③
D305	D–8	③
D306	E–6	–
D307	D–5	–
D308	C–10	–
D310	D–9	③
D311	D–9	–
D312	C–6	–
D315	E–5	–
D351	E–8	–
D399	E–5	③
D401	E–4	③
D402	C–5	–
D403	C–9	–
D513	G–6	–
D551	I–5	–
D561	G–5	–
D591	I–6	–
D601	H–12	–
D604	G–8	–
D605	G–9	–
D606	G–9	–
D607	I–8	–
D609	I–9	–
D610	H–8	–
D611	I–8	–
D613	E–9	–
D801	F–2	–
D802	F–2	–
D851	H–4	–
D852	H–4	–
D853	I–3	–
D855	J–4	–
D858	F–3	–
D860	E–2	–
D901	H–13	–
D1201	A–2	–
D1202	B–1	–
D1203	B–1	–
D1207	B–2	–
D1208	B–2	–
D1209	B–3	–
D1504	G–6	–
D1505	G–6	–

– A BOARD –

– A BOARD WAVEFORMS –

① 5.0Vp-p	② 2.7Vp-p	③ PAL 0.7Vp-p (H)	③ SECAM 0.7Vp-p (H)	③ NTSC 1.3Vp-p (H)	④ PAL 0.5Vp-p (H)
④ SECAM 0.6Vp-p (H)	④ NTSC 1.0Vp-p (H)	⑤ PAL/SECAM PAL : 1.4Vp-p (H) SECAM : 1.3Vp-p (H)	⑤ NTSC 1.5Vp-p (H)	⑥ PAL 1.1Vp-p (H)	⑥ SECAM 1.2Vp-p (H)
⑥ NTSC 1.0Vp-p (H)	⑦ PAL/SECAM PAL : 2.7Vp-p (H) SECAM : 2.9Vp-p (H)	⑦ NTSC 2.9Vp-p (H)	⑧ PAL/SECAM PAL : 2.6Vp-p (H) SECAM : 2.8Vp-p (H)	⑧ NTSC 2.7Vp-p (H)	⑨ PAL/SECAM 2.5Vp-p (H)
⑨ NTSC 2.3Vp-p (H)	⑩ PAL 2.2Vp-p (H)	⑩ SECAM 2.2Vp-p (H)	⑩ NTSC 2.4Vp-p (H)	⑪ PAL 0.9Vp-p (H)	⑪ SECAM 1.3Vp-p (H)
⑪ NTSC 1.0Vp-p (H)	⑫ PAL 0.7Vp-p (H)	⑫ SECAM 0.7Vp-p (H)	⑫ NTSC 1.3Vp-p (H)	⑬ PAL 0.5Vp-p (H)	⑬ SECAM 0.6Vp-p (H)
⑬ NTSC 1.0Vp-p (H)	⑭ 149Vp-p	⑮ 1030Vp-p	⑯ 1.5Vp-p (V)		

A BOARD IC300 TDA8735A

A BOARD IC351 TDA4665T-T

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Please pay attention while inspecting or reparing it to prevent an electric shock.

A BOARD ✻ MARK LIST

	KV-2199M5J	KV-J21MF2J		KV-2199M5J	KV-J21MF2J
C003	#	100p 50V : CHIP	Q413	#	UN2216-TX
C012	#	100p 50V : CHIP	Q415	#	UN2216-TX
C409	#	47p 50V : CHIP	Q416	#	2SD601A
C412	#	68p 50V CH : CHIP	Q417	#	UN2216-TX
C414	#	100p 50V : CHIP	Q418	#	UN2216-TX
C416	#	100p 50V : CHIP	Q1205	#	2SB709A
C417	#	100p 50V : CHIP	Q1264	#	UN2216-TX
C418	#	390p 50V : CHIP	R009	#	1k : CHIP
C419	#	100p 50V : CHIP	R014	#	1k : CHIP
C422	#	330p 50V CH : CHIP	R058	#	4.7k : CHIP
C424	#	470p 50V CH : CHIP	R247	10k : CHIP	1k : CHIP
C1203	#	0.1 25V B : CHIP	R248	15k : CHIP	1k : CHIP
C1206	#	0.1 25V B : CHIP	R249	15k : CHIP	1k : CHIP
C1212	#	1 50V	R250	15k : CHIP	1k : CHIP
C1215	#	180p 50V B : CHIP	R264	4.7k : CHIP	3.3k : CHIP
C1216	#	0.47 25V B : CHIP	R265	4.7k : CHIP	3.3k : CHIP
C1223	#	1 16V B : CHIP	R410	#	10k : CHIP
C1225	0.47 25V	#	R411	#	2.2k : CHIP
CF45	#	1-527-943-32	R412	#	6.8k : CHIP
CF60	#	1-567-100-22	R413	#	2.2k : CHIP
CF65	#	1-567-101-22	R415	#	1k : CHIP
CT45	#	1-579-690-21	R417	#	220 : CHIP
CT60	#	1-409-429-21	R418	#	680 : CHIP
CT65	#	1-409-327-21	R422	#	120 : CHIP
D401	#	MA77-TX	R423	#	150 : CHIP
D402	#	ISS119-25TD	R427	#	330 : CHIP
D1203	#	RD9.1ES-T1B	R428	#	22k : CHIP
D1209	#	RD9.1ES-T1B	R429	390 : CHIP	180 : CHIP
IC401	#	LA7910	R430	#	470 : CHIP
J1201	#	4P	R431	#	22k : CHIP
J1202	#	2P	R432	#	470 : CHIP
JR107	0 : CHIP	#	R435	#	470 : CHIP
JR116	#	0 : CHIP	R436	#	22k : CHIP
JR203	0 : CHIP	#	R437	#	22k : CHIP
JV252	#	7.5MM	R1204	#	47k : CHIP
L403	#	12µH	R1207	#	47k : CHIP
L404	#	8.2µH	R1213	#	1k : CHIP
L405	#	8.2µH	R1214	#	470k : CHIP
L407	#	15µH	R1222	#	1k : CHIP
L408	#	1.8µH	R1223	#	10k : CHIP
L409	#	2.2µH	R1224	#	10k : CHIP
L411	#	2.7µH	R1226	#	39k : CHIP
Q403	#	UN2216-TX	R1234	#	43k : CHIP
Q404	#	UN2216-TX	R1235	39k : CHIP	43k : CHIP
Q405	#	2SB709A	R1242	#	1k : CHIP
Q407	#	2SB709A	R1244	#	100 : CHIP
Q410	#	2SB709A	R1253	1.5k : CHIP	3k : CHIP
Q411	#	2SD601A	SWF401	1-767-663-11	1-767-771-11
Q412	#	2SD601A			

: Not Used

PRINTED WIRING BOARD

C [RGB OUT]

VM [VM OUT]
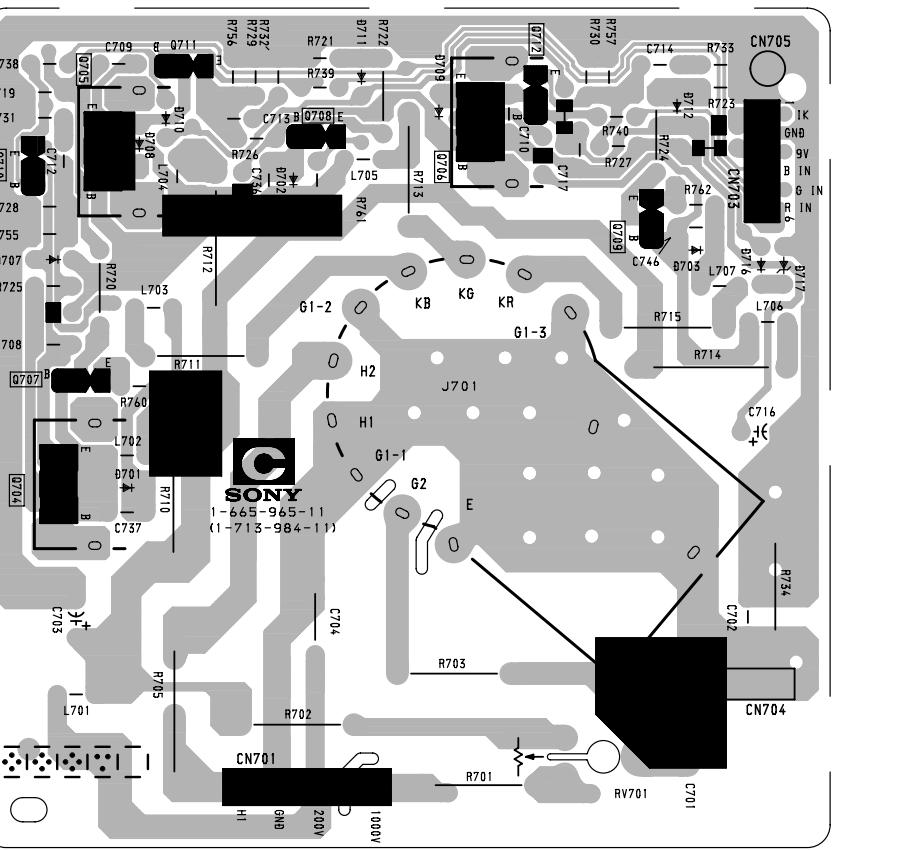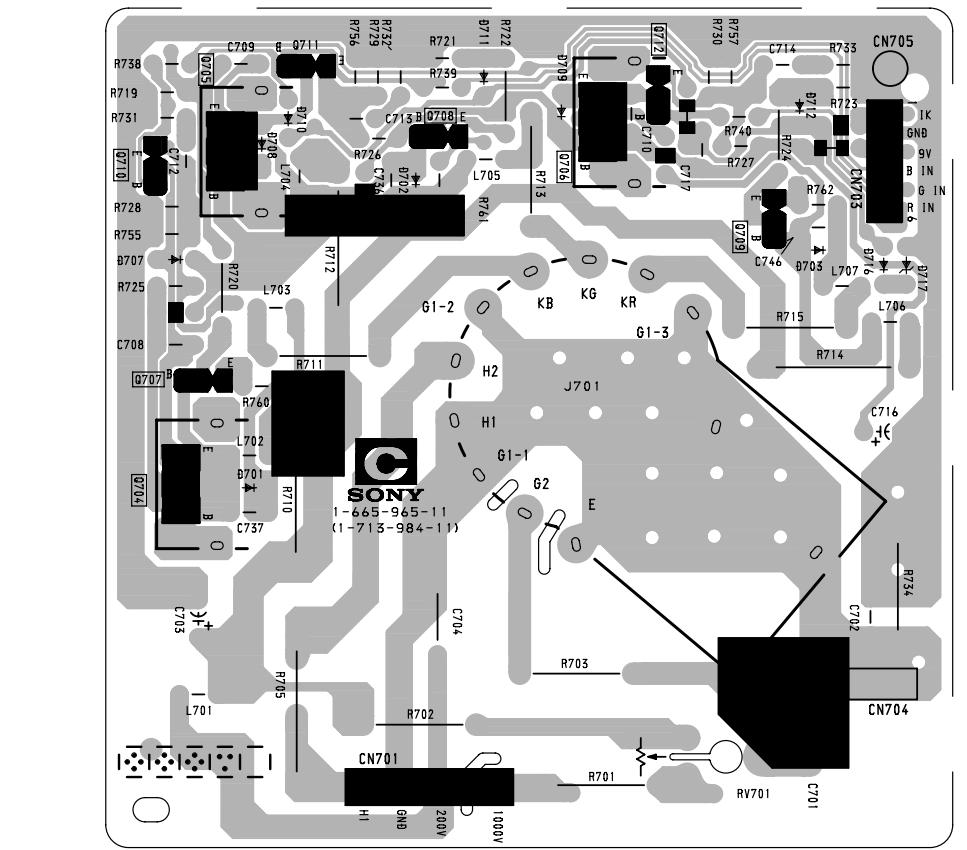
– C BOARD –

– VM BOARD –

(2) Schematic Diagrams of C and VM Boards

C [RGB OUT]

VM (VM OUT)

NECK ASSY
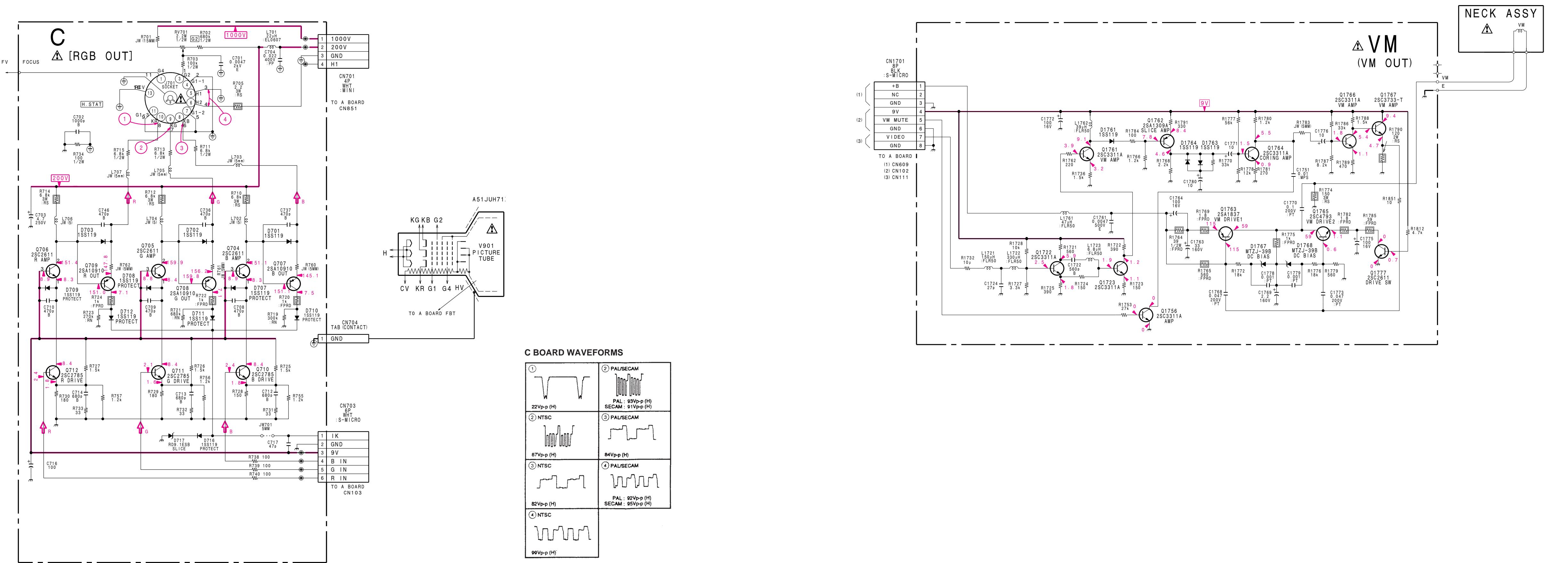
C BOARD WAVEFORMS
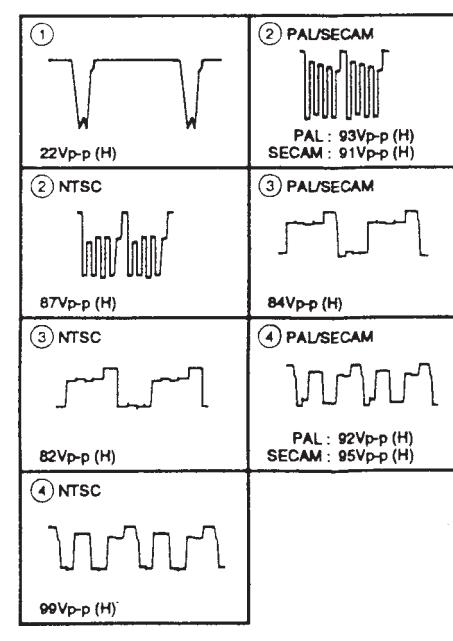
6-4. SEMICONDUCTORS

IC

AT24C04A-10PC-B
TDA7438D
μPC4558G2 (8PIN)

Small Outline L-leaded Package
Pin 8   98
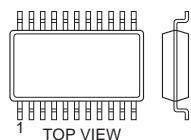
CAT24C04P
**CXP85220A-060S**
TDA4665T
TDA8375A
TDA8395

Dual In-line Package
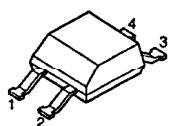Pin 6   98
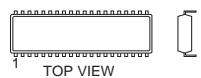
LA7830
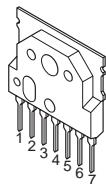
LA7910 (9PIN)
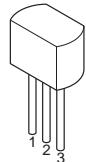
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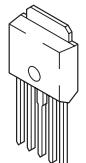
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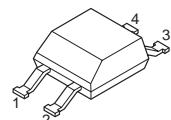
PQ09RF11

SBX1981-11

STR-S6707N (9PIN)

MARKING SIDE VIEW

Zip-zag In-line Package
Pin6   99
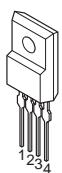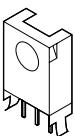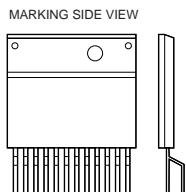
SE115N
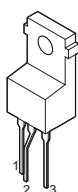
TA8248K
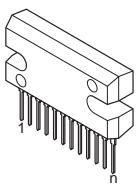
TRANSISTOR

UN2211
UN2213
UN2216
2SB709A-QRS
2SD601A-Q
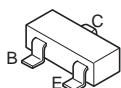
2SA1091-O
2SA1091-R
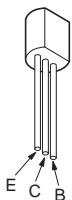
2SA1309A-QTA
2SC2410SN
2SC2785-HFE
2SC3311A-QRS-TA

LETTER SIDE

2SA1837

2SC2611

LETTER SIDE
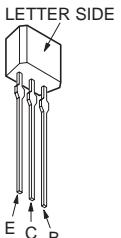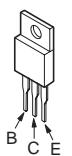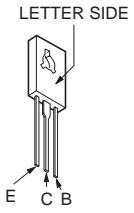
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2SC3733-T
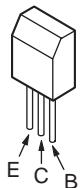
2SD1878-CA

2SD2061-E

– 37 –
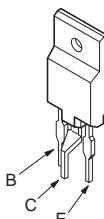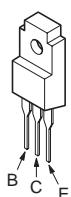
DIODE

DA204K
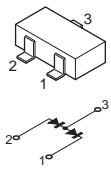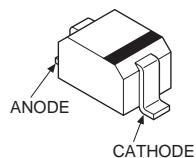
D1NL20-TA2
EL1Z
GP08D
RGP02-17EL-6433
RGP10GPKG23

CATHODE

ANODE

RBV-406H

ERC06-15S
RU4Z

CATHODE

ANODE

ERD29-08J
RU4AM-T3

CATHODE

ANODE

HZT33-02TE

CATHODE

ANODE

MA113-(TX)
UDZ-TE-17-9.1B

ANODE

CATHODE

MA77-TX

ANODE

CATHODE
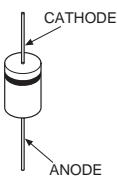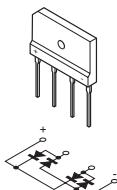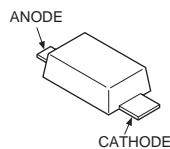
MTZJ-T-77-39B
RD.2.2ES-B1
RD.4.7ES-B1
RD.5.1ES-B1
RD5.6ESB2
RD8.2ES-B2
RD9.1ES-B1
1SS119-25

CATHODE
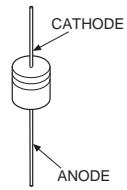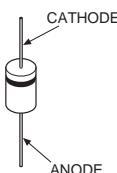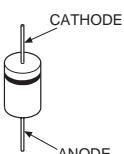
ANODE
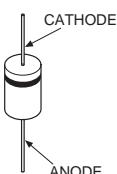
6-4. SEMICONDUCTORS

CAT24C04P (8PIN)
CXP85220A-057S (64PIN)
TDA4665T-T (16PIN)
TDA8375A (56PIN)
TDA8395T (20PIN)

TOP VIEW
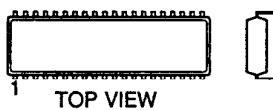
Dual In-line Package
Pin 6 ~ 98

LA7830
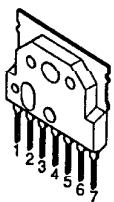
LA7910 (9PIN)
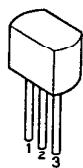
L78LR05D-MA
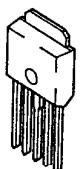
NJM2234L (8PIN)

MARKING SIDE VIEW
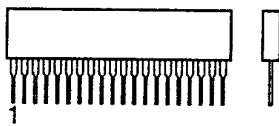
Single In-line Package
Pin 6 ~ 99

PC123F2

PQ09RE11

SBX1981-11
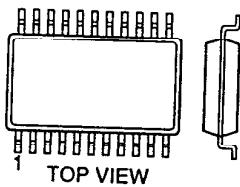
STR-S6707 (9PIN)

MARKING SIDE VIEW
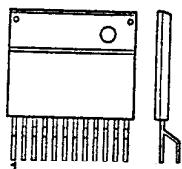
Zig-zag In-line Package
Pin 6 ~ 99

SE115N

TA8248K

µPC4558G2 (8PIN)

TOP VIEW

Small Outline L-leaded Package
Pin 8 ~ 98

µPC574J

ANODE   CATHODE
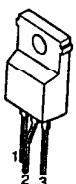
UN2211
UN2213
UN2216
2SA1162-G
2SD601A-Q

2SA1091-O

2SA1175-HFE
2SC2410SN
2SC2785-HFE
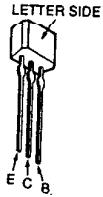
2SC2611
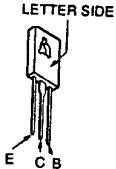
2SC3209LK

2SD1878-CA
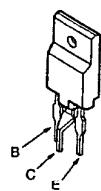
2SD2012

DA204K
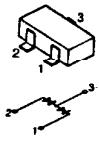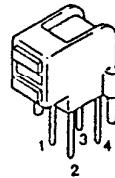
D1NL20
EL1Z
GP08D
RGP02-17EL-6433
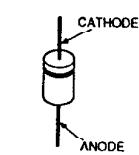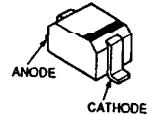
D4SB60L
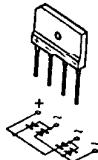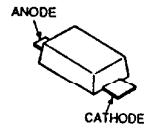
ERC06-15S
S3L20UF4

ERD29-08J
RU4DS
ZSML-9.1B-T1

LN021616PH

MA113-(TX)

MA77

RD2.2ES-B2
RD4.7ESB2
RD5.1ES-B1
RD5.6ESB2
RD8.2ES-B2
RD9.1ES-L
1SS119-25
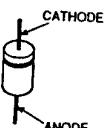
SECTION 7

EXPLODED VIEW

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark △ are critical for safety.
Replace only with part number specified.

7-1. CHASSIS

■ : BVTP4 × 16 7-685-663-71
▲ : BVTP3 × 12 7-685-648-71
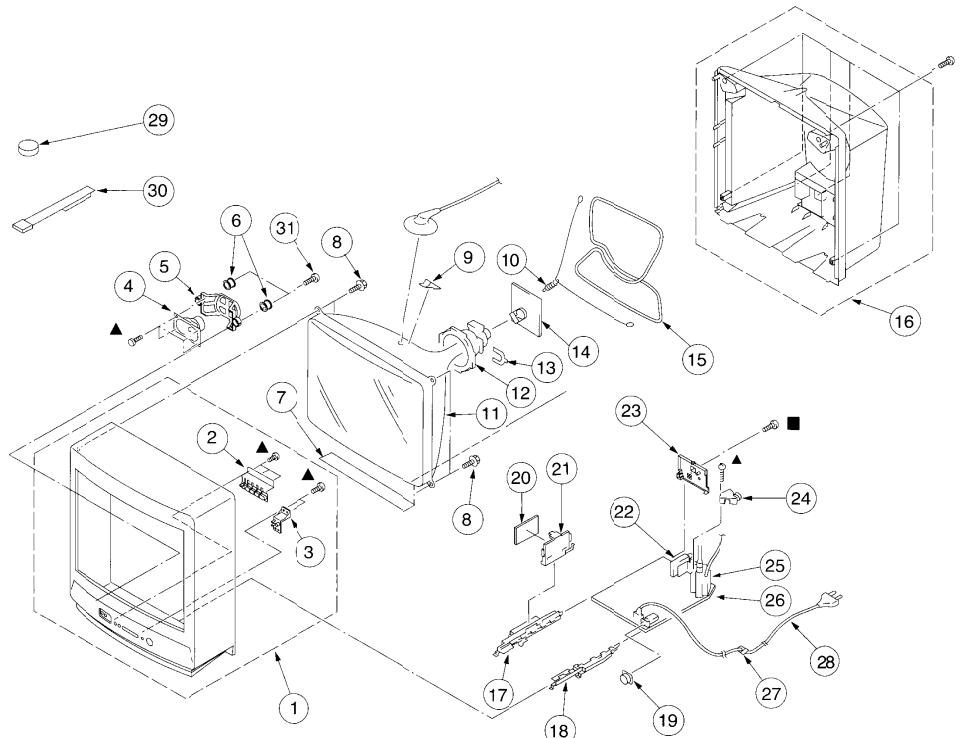
REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4034-781-1	BEZNET ASSY (KV-G2 M2)	2,3
	X-4034-785-1	BEZNET ASSY (KV-G2 Q2)	
2	4-056-187-01	BUTTON, MULTI	
3	4-056-188-01	PLATE, LIGHT GUIDE	
4	1-505-740-11	SPEAKER (5X9CM)	
5	4-059-709-01	BRACKET, SPEAKER	
6	2-947-764-11	CUSHION, SPEAKER	
7	4-385-725-01	SHEET, BLOTTING	
8	4-365-808-01	SCREW (5), TAPPING	
9	4-046-600-11	SPACER, DY	
10	4-369-318-61	SPRING, TENSION	
11	△ 8-738-774-05	PICTURE TUBE (A51JLH71X)	
12	1-451-280-33	DEFLECTION YOKE (Y21PXA2)	
13	1-452-277-00	MAGNET, BMC	
14	* 1-331-688-A	C BOARD, COMPLETE	
15	△ 1-409-942-11	COIL, DEMAGNETIZATION	
16	△ 4-057-740-21	COVER, REAR	
17	* 4-055-841-01	RAIL (L), GUIDE	
18	* 4-055-840-01	RAIL (R), GUIDE	
19	4-056-186-01	BUTTON, POWER	
20	* A-1241-204-A	F1 BOARD, COMPLETE (KV-G21M2)	
21	* 4-049-158-01	BRACKET, F1 PC BOARD (KV-G21M2)	
22	△ 8-598-323-30	TUNER (BT-AG401)	
23	4-059-710-01	BRACKET, TERMINAL BOARD	
24	* 4-059-711-01	HOLDER, FBT	
25	△ 1-453-250-11	TRANSFORMER ASSY, FLYBACK (NX-1746/M3A)	
26	* A-1298-134-A	A BOARD, COMPLETE (KV-G21M2)	
	* A-1298-217-A	A BOARD, COMPLETE (KV-G21Q2)	
27	△ 4-022-115-12	HOLDER, AC CORD	
28	△ 1-769-609-21	CORD, POWER (WITH CONNECTOR) (KV-G21M2)	
	△ 1-574-062-61	CORD, POWER (WITH CONNECTOR) 2.5A/250V (KV-G21Q2)	
29	1-452-032-00	MAGNET, DISC	
30	4-051-736-21	PIECE A(90), CONV. CORRECT	
31	4-302-404-03	SCREW (WASHER HEAD) (BVTP 4×16)	